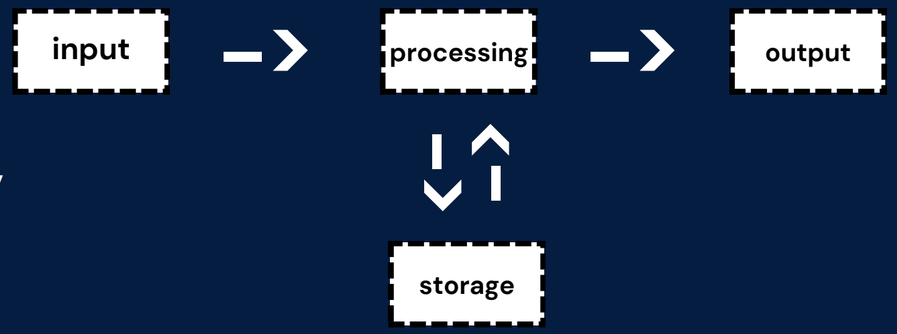
How does a computer system works

1. The input devices send the data or commands to the computer for processing. Eg- keyboard, mouse

2. The CPU retrieves an instruction from the computer's memory (RAM), interprets what the instruction means and carries out the command.

3. Then the storgae devices store data permanently for long-term use. Eg - Hard drives (HDDs) , solid-state drives (SSDs)

4. Then the O/p devices present the results of processed data.
Eg - Monitors, printers, speakers



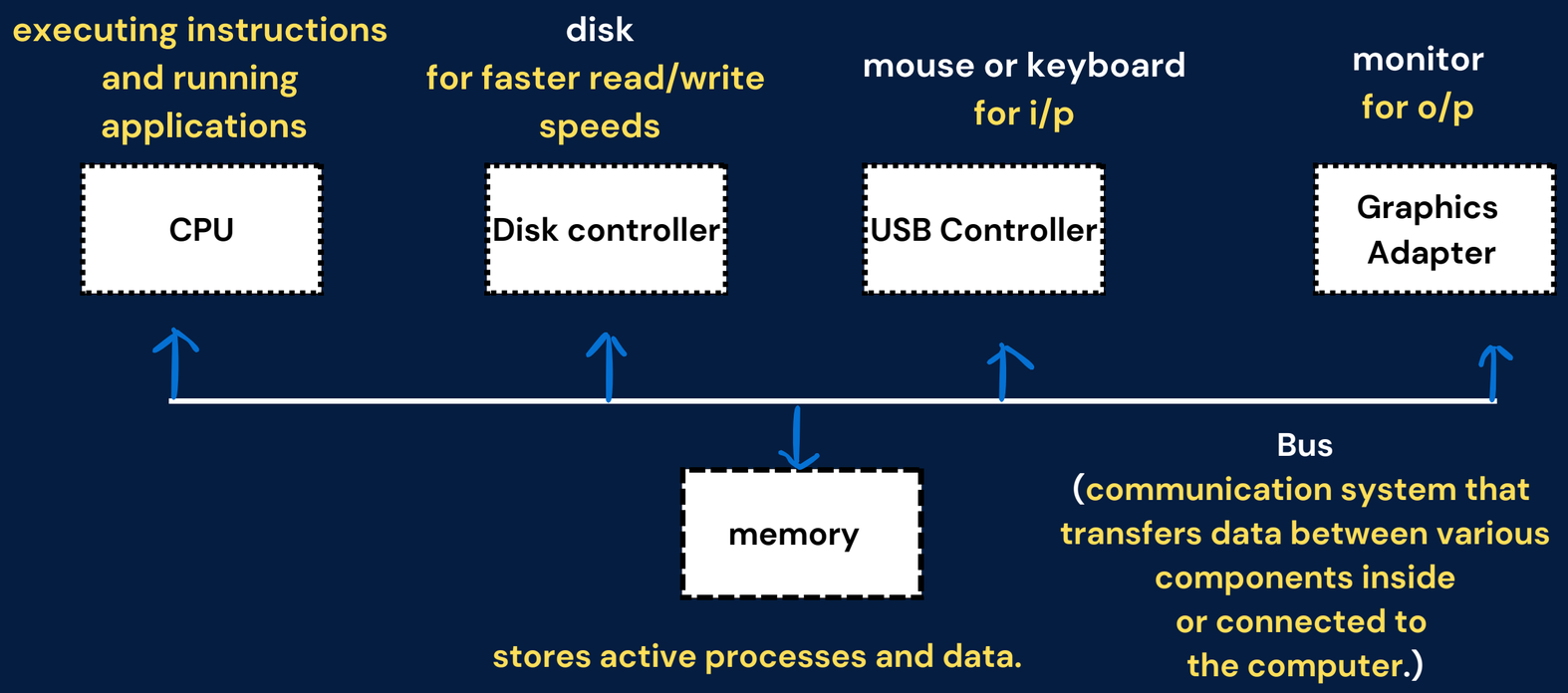
A computer system operates by taking input, processing it through its CPU and memory, and delivering the output through various devices, all managed by an operating system. The interaction between hardware (physical parts) and software (programs and data) is essential for completing tasks, from basic calculations to complex processing like gaming or video editing.

How does a computer system works

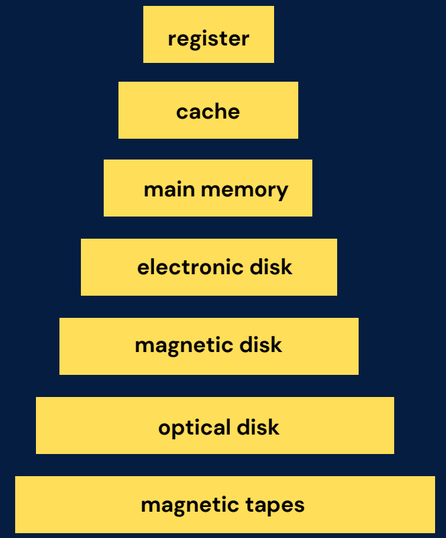
Modern Computer System

Primary Memory (RAM)-
Temporary storage for data and programs that the CPU is currently using. It allows quick read and write operations, enabling fast access to active processes.

Secondary memory provides long-term data storage and is not directly accessible by the CPU.
Eg : HDD (Hard Disk Drive), SSD (Solid-State Drive)



How the data is stored

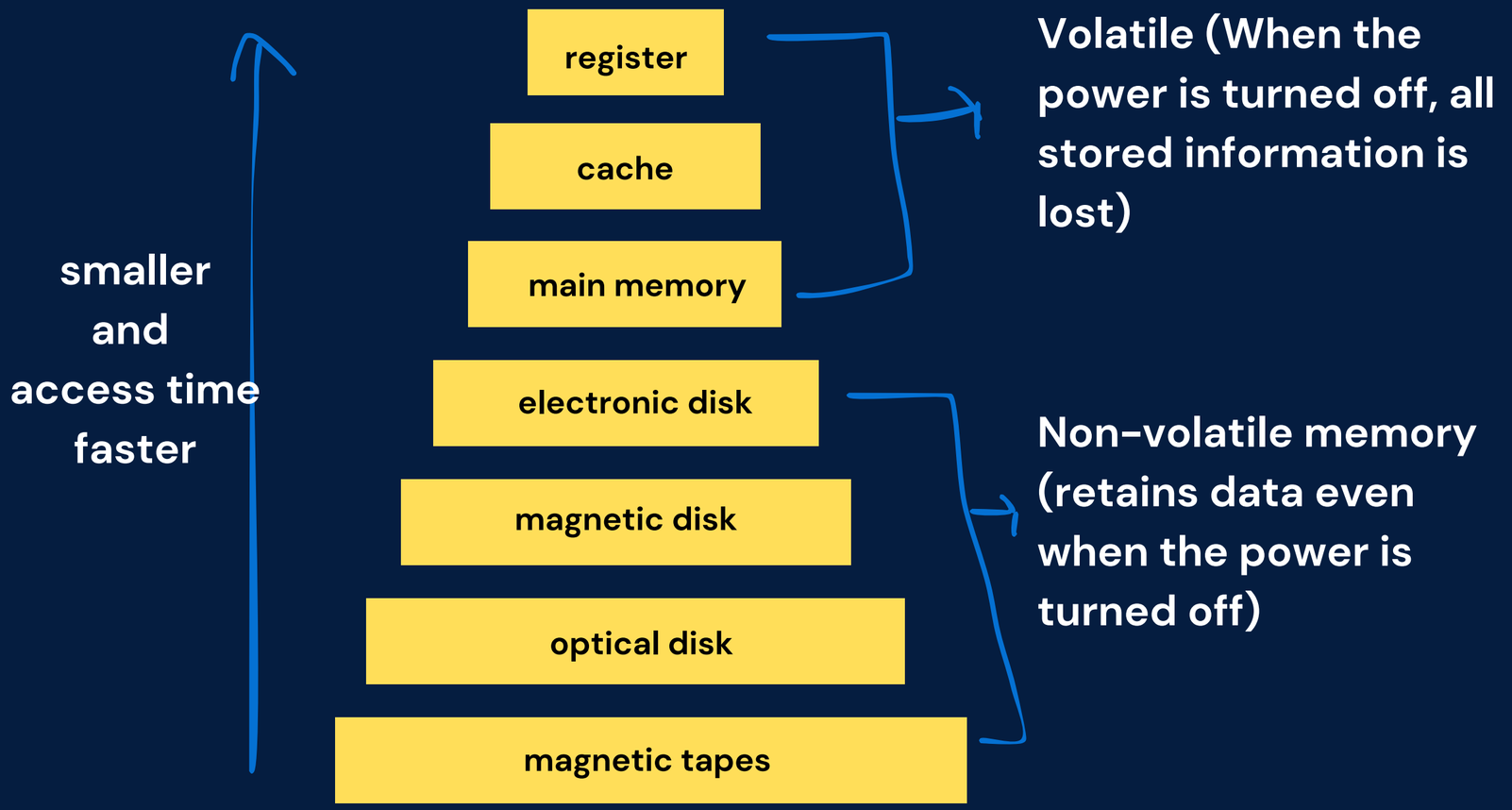


Whenever you open an application, the operating system loads it from secondary storage (e.g., SSD or HDD) into the main memory so the CPU can access it quickly. This allows multiple applications to run simultaneously, supporting multitasking in the operating system.

Volatile memory requires a constant power supply to retain data. When the power is turned off, all stored information is lost. This type of memory is faster and typically used for temporary storage where quick access is essential .
Eg : RAM, Cache

Non-volatile memory retains data even when the power is turned off. This type of memory is essential for permanent or long-term data storage, making it suitable for applications that require data to persist across reboots or power failures.
Eg : ROM, SSDs (Solid-State Drives), USB flash drives, HDD (Hard Disk Drive)

How the data is stored



How the data is stored

- **Registers:** It is small and extremely fast storage locations within the CPU. It is the fastest type of memory, but limited in size.
- **Cache Memory :** It is high-speed memory located close to the CPU, divided into L1, L2, and L3 cache.
- **Primary/Main Memory (RAM):** It is a volatile memory used to store data and programs that are currently in use. Main memory holds the data and instructions of currently running applications.
- **Optical disk/Magnetic disk** : It used primarily for backup and archival purposes.
- **Hard Disk Drives (HDDs)**: It uses magnetic storage to read and write data.